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THE TREATMENT OF STRICTURE OF THE URETHRA, TOGETHER WITH CERTAIN MEASURES AND PRECAUTIONS NECESSARY TO OBTAIN SUCCESS IN THOSE CASES OF URETHRAL STRICTURE REQUIRING A CUTTING OPERATION.

By GRANVILLE MACGOWAN, M.D.
Los Angeles.

STRICTURE may be defined as a lessening of the normal caliber and interference with the dilatability of a urethral canal by round celled infiltration, or deposit within its walls or in the corpus spongiosum of cicatricial connective tissue as a result of prolonged or chronic inflammation, or of mechanical or chemical injury.

These contractions are usually susceptible of dilation by instruments made of whalebone, silk, or steel, called bougies or sounds; and, after a certain increase of caliber has been reached, say 22 to 26 F., and further progress is apparently denied by reason of the density or resilience of the cicatrix, great help may sometimes be obtained by the patient use of expanding dilators, the best type of which is that of Kollmann. Great caution should ever be preserved not to use these powerful levers as divulsors. The operator should be satisfied to advance from one-half to one number on the dial at each sitting; and the utmost cleanliness should be practiced in the toilet of the urethra and bladder, both before and after the use of the dilator, in the asepsis of the instrument and its cover. These dilators are dangerous machines in the hands of the careless or unwary; the canal is always brittle behind or in the site of one of these tight strictures, and I have known of quite a number of cases of rupture of the urethra occasioned by the abuse of Kollmann's dilators in the hands of overconfident or inexperienced persons doing urethral surgery.

In proportion to the very great number of strictures that

come to treatment, very few require any cutting operation. It has, however, been my fate to have treated quite as many, if not more cases of stricture by internal or external urethrotomy, than I have by dilation. The reason for this is that the greater number of the persons who have sought my advice voluntarily have had strictures which were capable of dilation, while a very great number of those for many years in this city and county, and the southern part of this State, whose strictures have been regarded as impassable, uncontrollable, or beyond help, have been brought or sent to me for operation by others. My external urethrotomies alone run into many hundreds, and I have ceased to keep account of them. Necessarily in this experience I have gained some knowledge of why these operations are rarely strictly curative; what is necessary to obtain the best results; and what in technique and after treatment should be avoided. It is this knowledge gained from the study of my own mistakes and the contemplation of the blunders of others, that I now endeavor to express to you.

Before doing a cutting operation, really know that such an operation is necessary; which means that you must be supplied with instruments of precision to determine the greatest degree of contraction present, its pathological nature, and its possibilities of dilation. Positive information as to the presence and grade of stenosis, unless it is severe enough to occlude the channel from the meatus, or only allow of the passage of a whalebone bougie, may be obtained only by the intelligent use of the shouldered or bulbous bougies as stricture searchers, and of the electric endoscope. Any urethra with an approximately normal meatus should allow by gentle manipulation, aided sometimes by the relaxing effects of the local use of a little cocaine and adrenalin solution, the passage of a shouldered bougie, of a slightly less caliber than its meatus, to the bladder; and if upon its gentle return it does not catch or hang at any place so strongly as to require noticeable muscular effort to effect its withdrawal, there is certainly no stricture present, or none that can give excuse for interference by cutting. Every physician treating strictures should have such bougies in the flexible French or German makes, running in alternate numbers from 10 to 30 F., and in steel with copper handles from 20 to 30 F., the latter for use only after cutting operations, to make sure of the

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serevance of all bands. The information obtained by a conical steel sound in examinations for stricture, is very deceptive, and though it has in a half-degree the weight of the authority of Keys as a procedure, very few other urinary surgeons would think of relying upon it.

When a tight stricture is situated within an inch of the meatus, and any difficulty is encountered in dilating, it should always be cut. The instruments needed are one small and one medium blunt pointed straight bistoury, a grooved director, and some steel bulbous bougies from 20 to 30 F. The essential points in cutting are that the meatus is to be markedly overenlarged and all of the bands back of it severed so that finally a steel 30 bulbous bougie can be passed to and fro freely through the seat of the stricture. Sometimes the stenosis extends to the roof of the urethra, but permanent benefit is not obtained by cutting the roof in this region. Afterwards for fifteen days a conical meatus sound should be passed daily through the wound to keep it dilated and in spite of this attention there will often eventually be more after-contraction than is desirable. The first few days it is best to keep the sides of the wound apart by gauze strips soaked in melted vaseline. When the stricture is situated in the urethra between the region described and the triangular ligament, it is usually best to do an internal urethrotomy. Here again we need instruments of precision. I do not believe it is proper to undertake such an operation, as I saw two physicians of my acquaintance once attempt in one of our hospitals, with three or four large steel sounds and an antiquated Civiale urethrotome that could not possibly be introduced past the face of the filiform stricture.

The operator should be provided with whalebone filiform bougies, tunneled silver catheters from 8 to 16 F., a Maissoneuve urethrotome or one of its modifications, and an Otis urethrotome, either straight or curved. The blades of these instruments should be sharp and tried in their sheaths to see if they move freely, before the patient is anesthetized; and the distal extremity should be tunneled to thread on a filiform guide. If the stricture cannot be dilated to admit an instrument the size of No. 16 F., the Otis urethrotome cannot be used. However, a filiform can almost always be passed and tunneled silver catheters of increasing sizes

threaded upon it until the passage is dilated enough to take the Maissoneuve, or even sometimes the Otis. Never use great force to introduce these catheters; it is better to tie in a filiform for a few days so that the surface of the stricture may become softer and more dilatable. When there is room for the shaft of a Maissoneuve to go by, the 26 blade may be driven home without fear. If the tip of the instrument is in the bladder and the shaft is not depressed, nothing of importance will be injured in the cutting. After its withdrawal, a warmed and lubricated steel sound of moderate size should be passed to the bladder. This may often be followed by other sounds in increasing numbers until 26 F. or even larger will pass easily, if so it is enough; for it is never to be forgotten that cutting a stricture is not curative, it is only a substitute for dilation and done for the sole purpose to make the latter possible. But if, as usually happens, only an 18 or 20 F. sound can be passed, the caliber of the canal will have to be further enlarged by cutting with the blades of the Otis instrument. When there are false passages in the urethra or enlarged follicles, or pockets in front of the strictured portion, it is sometimes difficult to guide the shaft of the Otis instrument into the bladder. If the search is prolonged, it is best to replace the filiform and thread the eye of the shaft upon it. No violent effort or force must ever be used, for the man has commissioned you to improve, not to render worse, the condition of his urethra. The instrument introduced, its dilating blades are to be expanded until the dial registers 32 to 34 F., then the cutting blade is pulled through the sclerotic tissues and afterward pushed back into its sheath. The screw is now turned until the dial indicates 34 to 36 F., and then reversed slowly, while making gentle traction on the shaft, the instrument is withdrawn. By this maneuver one avoids the disagreeable accident of the dilating blades catching and holding and seriously wounding a fold of the mucous membrane of the urethra. The canal is then dilated with conical sounds and explored with the shouldered bougies to detect unsevered bands. Even with the sharpest of blades, sometimes several distentions with the dilator and cuts have to be made in the resilient or inodular tissues before all the obstructing bands are finally severed and the desired approximate caliber of the normal urethra obtained.

An average caliber of 30 F. should be fixed as the goal in

these operations, but judgment is necessary in these as in other matters. The chief requisites are that all bands shall be severed and the passage of the bulbous bougies be smooth. The urethra will always contract some in the healing of the wounds, so it is best to over cut. It is my habit, and I think it a good one, after cleaning the urethra and bladder of clots, to tie a 20 to 22 Nelaton catheter in the bladder for the first 24 to 48 hours following the operation. This controls hemorrhage and nearly always drains the bladder painlessly and thoroughly. The patient is kept in bed and the bladder washed out with normal salt solutions every half-hour for the first twelve hours, and later every four hours. Spasmodic contractions of the perineal muscles frequently occur before the patient has fully recovered from his anesthetic, thus preventing the passage of a catheter. This condition is usually overcome by a little more ether, but if not the catheter can always be made to pass by the aid of a steel mandrin. The catheter is removed and the patient is allowed out of bed at the end of forty-eight hours. A sound is not usually passed until the fifth day after the operation. This is repeated every four or five days until the wound is healed and no more shreds appear, then if no tendency to contraction reappears, sounds are passed for a month once a week, then for three months once in two weeks; then for six months once a month, and then for six months once in two months, which I think a very good interval for any man who has ever had a stricture operation to pass sounds himself, or have his surgeon do so, for his lifetime.

The weakness of internal urethrotomy is the impossibility of controlling positively the amount of tissue cut by the instrument used, the good often has to be cut with the bad; the tissues are all erectile and do not remain of the same size and in the same place while the cutting is being done. When the operation is done beyond the first inch of the urethra, the incision is never in anyone's hands entirely confined to the diseased structures, except where the urethroscope may be used to bring in sight a band-like constriction which may be cut with a special urethral knife (Oberlander, Kollman), directly under the eye.

In view of these circumstances, it is best to do internal urethrotomy for strictures:

1. When they are not dilatable.

2. If the passage of instruments is accompanied by disagreeable hemorrhage, abundant catarrhal discharge or is followed by chill.

3. First, if the patient has retention and is the inmate of an overcrowded charity hospital; second, in a condition that demands surgical interference; third, has had retention and his business requires him to be in places where he cannot get good surgical care in case of the repetition of the retention.

Where the sclerosis has implicated the greater part of the canal from meatus to bladder do not expect a disappearance of all of the disagreeable symptoms after the operation. If the stiff fibroid tube stands open enough to allow the individual to empty his bladder easily, teach him to be thankful for this; for he will not get rid entirely of the follicular urethritis, the prostatic catarrh and the vesical irritability. Under the influence of errors in diet, venereal excitement, the effects of alcohol or of cold, the patient will suffer from exacerbations of these troubles and will plague you with complaints of the lack of cure following his operation.

Thus are we brought up to the severe strictures of the deep perineal and membranous urethra. Very few American surgeons familiar with the anatomy of this region treat these narrowings by internal urethrotomy. The danger is too great from hemorrhage and infection. In this group may also be included those strictures just beyond the peno-scrotal junction which are impassable to any instrument.

This is the field per se for external urethrotomy, and taken altogether forms a most difficult class of surgical operations. Perineal section is very simple when you get the go of it, but external urethrotomy for perineal stricture is at times appallingly difficult even to experienced operators. It makes much difference whether one of those little thin whalebone strips called filiforms can be passed to show you the way or you have to operate without a guide.

One should have for such an operation filiform bougies, tunneled silver catheters, a Wheelhouse staff, a long curved staff for retrograde work, one or two fine silver probe pointed directors, some eye knives, small curved Graefe eye scissors, a narrow straight gorget, perineal tubes No. 34 to 40 F. with two eyes, a Blizzard knife, needles that will carry No. 0 cat-gut,

needle holder, strong blunt pointed curved scissors, good dissecting forceps, one or two good scalpels, some haemostats, a pair of uterine forceps, some soft rubber catheters, steel sounds and shouldered stricture searchers. Compare this with the list in your books on Genito-Urinary diseases and you will wonder what these are for. In many cases the operator will need every one of them and in most cases they will expedite work that is always difficult. A good light and plenty of time is always necessary.

Local anesthesia is rarely practical. Many of the persons requiring this operation are alcoholics or opium users and are difficult to bring under the influence of ether or chloroform, hard to keep motionless and are prone to collapse. For the past four years I have almost always employed spinal anesthesia in these cases, using from one to two grains of tropococaine. I find this entirely satisfactory. I believe it is without danger, and find the help the patient is able to give me, of great assistance in the search for the opening of the stricture.

In the Wheelhouse operation, either with or without a guide, the precautions necessary, are first to keep the button end of the staff within the urethra. It is so easy to puncture the rotten tissue, and once outside of the mucous membrane, a staff readily finds its way between the layers of the bulb, often feels entirely free, and leads one into difficulties that may prove unsurmountable. Nearly all of the mistakes and troubles arise primarily from violence done to the urethra by the person holding the staff or the use of too coarse knives and probes by the operator. One should always open the urethra a half inch or more in advance of the constricted portion, so as to have sound mucous membrane into which to introduce the sutures used for retractors. The opening of the stricture is always tortuous and frequently eccentric and minute; it often lies among a bunch of wart-like granulations. The folly of searching for the channel with large grooved directors and incising it with coarse bladed scalpels is obvious. It is for this reason I use probe pointed and sharp pointed eye knives for this work. The Graefe probe pointed curved scissors are made use of to remove any wart-like excrescences which may be found; they can easily be taken off level with the mucous membrane with this instrument, and it is the only scissor I know suitable for the purpose.

Having discovered the opening, enlarge it upon the floor, cutting on the fine probe pointed director with a fine knife until a probe pointed straight gorget can be passed to the bladder; then with a Blizzard sever all of the obstructions in the bulbo-membranous urethra on the floor. Do not fear the bleeding, though it is often considerable I have never known anyone to be destroyed by it. If the incision is in the median line no arteries will be cut. If any artery is cut take it up with the surrounding bulbar tissues in a mass ligature, using a round pointed needle. Now right here is where many operators fail. The way appears clear to the bladder and they are satisfied to introduce a catheter through the perineal wound, tie it in, pack the cavity and admire themselves for breaking into the bladder so slickly. In the average case the operation is only half done at this stage. The next step is to introduce an index finger into the wound palmar surface upward and ascertain the condition of the roof of the canal within the limits of the incision and posterior to it. It is important always to save the roof of the canal as much as possible, for from a comparatively narrow strip of healthy mucous membrane on the roof the new channel formed by granulation will be covered and regenerated. But do not allow any bands to remain in this position. Cut them carefully where you can see them, with a thin bladed sharp knife in the median line, and if the infiltration extends through the urethra let the incision also extend through it so that the stiffened tissues in healing will carry a splice in the roof as well as on the floor. Where they are out of sight, cut them carefully with a sharp Blizzard guided by the sense of touch.

Explore the membranous and prostatic urethra with the finger. If there is obstruction to the entrance of the finger not easily overcome, introduce a Kollmann straight dilator or a Wylie uterine dilator along the gorget into the bladder, and cautiously but thoroughly dilate the urethra and the bladder neck to 40 F. There need be no fear of overstretching the bladder neck unless the operator is brutal. This procedure overcomes all spasm and irritability of the bladder after the operation, and allows of drainage through a large tube without discomfort. Sometimes there are bands or dense infiltrations of cicatricial tissue in the membranous urethra beyond the limits of the original stricture which require incision; if they are found the Blizzard is the best agent

to deal with them. In elderly persons I have a number of times met with the disagreeable complication of contracture of the bladder neck, or obstructive sclerotic prostatic enlargement as a complication of severe bulbo-membranous stricture, and these must be removed by appropriate operation at the same sitting, if success is to be looked for. If false passages exist into the bladder they should be cut so as to form one channel with the urethra.

The most common stumbling block is lack of careful examination of the urethra in front of the incision. This should always be cleared of obstructions before the operation is finished. Do not depend on subsequent dilation. If there is any narrowing cut it at the meatus with the blunt pointed straight bistoury, and further along the canal with an Otis urethrotome. Cut freely, so that a 30 F. bulbous bougie will pass smoothly from meatus to the bladder. Then finish the operation by introducing a 34 to 40 F. perineal drainage tube into the bladder and a full zized No. 26 F. catheter through the urethra until it can be felt in the perineal wound impinging upon the perineal tube. Fasten the catheter by a stitch holding it to the glans, and the perineal tube by a silk worm suture passed through both edges of the perineal wound and looped tightly about the tube at a point where careful trial shows the tube is set properly for drainage. If the perineal wound is a large one, a stitch may be placed next to the rectum and one or two near the scrotum, but no attempt should be made to close the wound tightly, the chances of sepsis are too great and the safety of the patient depends upon the freedom of the drainage. If the oozing is considerable, a light packing of a gauze trailer soaked in solution of adrenalin 1-1,000 and a pad under a double " T " bandage will control it.

The bladder is washed with sterile normal salt solution every half hour through the perineal tube, to prevent the accumulation of clots, until posterior active hemorrhage ceases; it is then washed every four to six hours, as long as the tube is retained, with borosalycilic solution, and after the removal of the perineal tube, which takes place in from two to six days, according to the condition of the urine, each time a sound is passed, with solution of silver nitrate 1-30,000 until the urine is clear. The tube is removed from the anterior urethra on the second or third day, and the subsequent treatment is that detailed under internal urethrotomy.

Urinary antiseptics, urotropin and santal are used in small doses three times daily, the former between meals in solution, the latter after meals. Immediately following the operation, or while the patient is still upon the table, two liters of normal salt solution is introduced beneath the skin and this is repeated in from four to six hours. Since adopting this measure nearly ten years ago, I have never seen even in the worst cases, any flagging of urinary secretion or urethral fever follow the operation. Subsequent sounding should be repeated at intervals of four to five days until the external wound is healed. This takes place in from two to six weeks, and after the first week, usually proceeds just as well with the patient up and about as it does in bed.

The congestion incident to the pressure of the full bladder upon the veins of the penis will, when removed, often convert an impassable stricture within twenty-four hours into one that is easily passable to a filiform and a tunneled catheter. There are two ways of accomplishing this: One by sectio alta and drainage by a De Pezzer catheter stitched in the bladder by the Gibson method. This is easy and may be nicely done under infiltration anesthesia. While the bladder is open a retrograde staff may be passed into the posterior urethra from the bladder to the face of the stricture, the perineum and urethra freely opened on the staff and a drainage tube inserted, after which the suprapubic bladder wound may be closed. This is rather a common procedure in France and presents no great surgical difficulty.

In stricture impassable to all instruments, the safest way of gaining entrance to the bladder from the perineum is to make the inverted " Y " shaped incision, and after exposing the bulbo-membranous junction, cut off the recto-urethral tendon and enter the urethra at the apex of the prostate. A gloved finger in the rectum may press the urethra, which the trained finger can easily distinguish, against the pubic arch, a straight sharp scalpel with the cutting surface up can usually be readily thrust into the canal and a small straight gorget passed beside it to the bladder, after which the opening may be enlarged with a Blizzard until a good sized drainage tube can be inserted. Often after drainage for a few days, an internal urethrotomy may be done in what was considered previously an impassably strictured canal. This is sometimes more difficult than it is to tell of, for the anatomical

relations are not infrequently greatly distorted by the inodular masses, fistulae, etc., which have practically replaced the bulbar tissue, and tied down muscles and fascia so that they cannot be separated or retracted. In the final dealing with these conditions all of the cicatricial deposit must be removed with knife and scissors, and all fistulae split up and dissected out before the operation can be considered finished. It is well always to save the roof if it can be done, but if it is hopelessly cicatricial with the rest, it too must be resected and the divided ends of the urethra brought together over a catheter, which I have done successfully several times; or the ends united by grafts, a procedure which has never succeeded for me.

In these old and desperate cases do not look for a 26 F. urethra. Your patient and you will both be fortunate if you succeed in establishing a 16 F. that will remain patulous, and permit of fairly comfortable passage of urine.

As a final admonition, never fail after an operation for stricture, to search the bladder and prostate for stone. Be prepared always after an internal urethrotomy to crush a calculus and remove it, if one be found, at the same sitting. In an external urethrotomy if the stone be a small one, it may be removed through the perineal opening with a pair of stone forceps after the bladder neck has been dilated as directed. If it be a large one, it is best to crush it and pump it out with the evacuating instruments. This procedure is very easy of execution if the surgeon is properly equipped.

Suite 539 Douglas Block, Los Angeles, Cal.

SURGICAL INTERFERENCE IN MEDICAL NEPHRITIS.

By Reginald Harrison, F.R.C.S.
London, England.

Past Vice-President and Hunterian Professor of Pathology and Surgery Royal College of Surgeons.

ON January 4, 1896, I published a paper in the *Lancet* "On Some Forms of Albuminuria Associated With Kidney Tension and Their Treatment." Before the paper appeared in print the late Sir William Roberts wrote me that he believed "it will be the starting point of important things in the treatment of inflammatory affections of the kidney." This has proved to be the case, for since its publication, the surgical treatment of nephritis has received a large amount of attention from this standpoint, and much valuable literature relating to the subject has appeared which should be studied in its chronological order as indicating the stages which have so far been reached.

In presenting this subject, it is hardly necessary for me to point out that the present state of renal pathology and treatment relating to the large group of inflammatory affections of the kidney justify the attempts that have been and are being made to deal with some forms and stages of them on principles which are successfully applied to external parts of the body, which can be brought within reach of the sight and the touch. Antiseptic surgery has practically disposed of those distinctions which previously existed between operations performed on the surface of the body and on its internal organs.

Illustration of the application of these principles will be found in the eye. The recognition of the pathology of glaucoma and the adoption of surgical means for the removal of tension and the arrest of degenerative changes thus initiated, resulted in the preservation of sight which otherwise would have been lost. By this means Von Graefe converted an incurable affection into a curable one, and at the same time demonstrated the true nature of the disease. Hence it has been suggested that the term "renal

glaucoma " is not inappropriate. Could anything be more disastrous and permanently damaging to kidney tissue than the tension of nephritis as described by Dr. Dickinson, " as characterized by extravagant congestion and rapid swelling of the gland, so that I have seen at least in one instance the kidneys have burst their capsules." [1]

Time and experience have shown that there are many pathological conditions of the kidney which are beyond the reach of any medicines that have been tried, and which have passed into these hopeless states by the continued presence of mechanical agencies which might have been arrested by mechanical means. Some of the most disastrous conditions of advanced kidney disease and the complications arising out of them are directly due to the continuance of mechanical causes which hitherto have only been imperfectly recognized. An advanced pathology will doubtless appreciate more fully the effects of inflammatory tension as a factor in the production of permanent kidney disease.

For instance: (1) In the direct damage that is done to renal tissue by the excessive pressure which is caused by acute inflammation occurring within the area of the unyielding capsule of the kidney and the compartments it forms as is so often seen in cases of acute scarlatinal nephritis. Here as is well known these organs are thus not infrequently permanently damaged.

(2) In the damage inflicted on the kidney structure by the continued contraction of its thickened capsule. In this way, I believe, the small granular, contracted or cirrhotic kidney is produced and the organ is thus permanently destroyed by a process of gradual squeezing, so far as normal excretion is concerned. The pressure of a thickened capsule is capable of equaling that of a traumatic urethral stricture.

(3) The tension which commencing in the kidney spreads to the entire circulatory apparatus and eventually leads to hypertrophy of the heart. This as we all know is caused by the increased efforts of the heart to drive the blood through the obstructed kidneys.

On these grounds, as well as upon others that might be mentioned, I consider that surgical intervention for the purpose of relieving tension is indicated in some forms of renal disease. In these circumstances it has frequently led to the complete restora-

[1] Allbutt's System of Medicine, vol. iv. p. 354.

tion of these organs, after other methods of treatment have failed.

The following may be regarded as indications for relieving tension surgically in cases of nephritis however arising.

(1) Progressive signs of kidney deterioration as shown by the persistence or increase of albumen when it should be disappearing from the urine as in the natural course of inflammatory disorders ending in resolution.

(2) Suppression of urine or the approach of this state.

(3) Where a marked disturbance of the heart and circulatory system occurs in the course of inflammatory renal disorders.

The question in a case of nephritis sometimes arises as to which organ should be selected for operation. Unless there is something to indicate it, such as the presence of pain, my experience leads me to believe that this is not absolutely material to the issue. Both organs are usually involved in the inflammatory condition, though perhaps not to the same degree. In double nephritis the relief of tension in one kidney aids the other, and thus, as I have noticed, the normal amount and constitution of the urine may become re-established.

Similarly, aid to an injured kidney by the removal of direct pressure caused by the accidental extravasation of blood either within or around it has been shown to assist the opposite one and to restore the balance of the urinary excretion when this has been diminished or entirely suppressed.

These features were in evidence in a case where acute suppression of urine followed an operation for internal urethrotomy. Guided by the intense pain on one side over the region of the kidney, I performed a renal capsulotomy which was followed by the restoration of the urinary excretion and the recovery of the patient. During the fifty-four hours which intervened between the operation on the urethra and the simple division of the capsule of the kidney, only three or four ounces of blood-stained urine had been passed, and uræmia was evidently imminent.

I will pass on to notice the nature of the operation that should be practiced, as a rule, in these cases.

The kidney having been exposed by an incision through the loin, and if necessary for fuller exploration withdrawn through the wound, a linear incision through the capsule should be made

to the extent of two or three inches and sufficient to relieve any tension that exists. The desired object being effected, whether limited to the division of the tense capsule or the thorough exploration of the organ should a stone be suspected, a drainage tube is inserted so as to remain in contact with the kidney and the wound is then closed with sutures and dressed.

More recently Dr. Edebohls, of New York, has advocated and practiced what he designates as "decapsulation of the kidney for nephritis." It seems to me that Dr. Edebohls' method is open to a serious objection—I refer to the removal of more or less of the capsule of the kidney. How it is expected that anything better in the way of tissue can be substituted for the capsule removed, I certainly fail to comprehend. A new capsule formed in constant relation with a urinous surface is almost sure to be thick and contractile as I showed in my Lettsomian Lectures (1888) in connection with observations made on the healing of wounds in contact with urine.

I do not think I can better express my views in reference to the operation of decapsulation of the kidney for nephritis than in the following passage from a letter of an eminent surgeon in America with whom I have been in correspondence on this subject.

He thus writes: "In the many discussions I have had upon the reports of these operations (decapsulation), I have taken the position that the only benefit derived was from the relief of tension and that this could be better obtained by nephrotomy, or even by incision of the capsule over the convex border. The assumption that the nutrition of the kidneys is increased following decapsulation because of penetration of vessels from the fatty capsule, cannot be sustained histologically, anatomically or pathologically. The new capsule following the operation is of a tough, contracting, fibrous structure that will cause more tension than the one removed. No vessels enter the kidney from the fatty capsule, and the vessels from the renal arteries are terminals, only a few sprigs entering the capsule. My results in these cases have been good and I believe that if the incision is properly made in well selected cases, many good results will follow in most instances."

This is a weighty opinion in favor of nephrotomy as against decapsulation, and with its endorsement I will bring my remarks to a close.

THE DIAGNOSIS OF LARGE NEOPLASMS IN THE LEFT HYPOCHONDRIUM.

By Dr. EDMOND GIAUFFER.

Of the Faculty of Medicine of Lyons, France.

IN this short paper, space will not allow me to pass in review all the physical, functional, and secondary symptoms which of necessity should be taken into consideration when making a diagnosis of neoplasms in the left hypochondrium, or more correctly speaking to differentiate a large spleen from a large kidney. However, the cases which are here reported will give an occasion to bring out the importance of some of these symptoms and come to some conclusions.

CASE 1. (Due to the kindness of Dr. Cade). G. P. Nineteen years of age, entered hospital February 10, 1903, died March 30, 1903. Diagnosis: splenomegalia, probably of tuberculous origin. Autopsy: sarcoma of the left kidney with hepatic and pulmonary generalization.

The patient's father died of apoplexy; mother living and well. He has two sisters alive and in excellent health.

The patient himself has usually been well, no alcoholism, no syphilis. Although he never suffered from otorrhoea nor enlarged cervical glands in infancy, he had a bronchitis at the age of two. At the age of twelve he suffered from anemia for a few months. At seventeen he suffered from an attack of gastritis which lasted for a fortnight. He does not cough, nor has he ever had hemoptysis and although he has never left his home, which is at Vonnas, he never suffered from malaria.

In December, 1901, he was operated on for hernia.

The patient states that the affection for which he now enters the hospital dates back to November, 1902, at which time he was seized with pain in the left hypochondriac region, which he compared to a lumbago. Towards the middle of December his appetite and strength diminished, and at the same time, he noticed that his abdomen increased in size. However, he continued to

keep up with his hard work, which he did not relinquish until the end of January, at which time he was obliged to take to his bed. Since the latter part of December the patient has expectorated bloody sputum. At about the same time another symptom made its appearance, namely, a mild form of varicocele on the left side.

The patient consulted his physician upon several occasions, the first time being in the middle of December, and he again saw him between the 5th and the 10th of January, again at the end of January, and in the early part of February. It was at the last visit that his physician discovered that he had a tumor in the left hyponchondriac region, which he believed to be seated in the kidney.

The patient had lost considerable flesh since the commencement of the disease, his normal weight having been 69 kilograms. On January 25 he weighed 68 kilograms, March 6, 65 kilograms, 800 grams, and on March 14, 53 kilograms, 600 grams.

Upon examination, the patient was found thin, somewhat pale, the lips and gums being quite white, while the cheeks became red upon the slightest effort. He expectorates a gummy sputum which adheres to the bottom of the cuspidor and contains some blood, although there is an absence of pus which recalls to mind the sputum of an infarctus. Slight dyspnoea; at 9 o'clock in the morning respirations 26, which at 11 o'clock had increased to 40. There is dullness of the left base, while the vibrations are diminished. There is respiratory obscurity, but no distinct egophony nor souffle can be made out. At the left apex, both in front and behind, there are dullness, increased vibrations evident to the hand and ear, and a whistling and rough respiration. At the right base, friction sounds of perihepatitis can be detected extending very low, even below the thorax and at this point the patient complains of pain. Throughout both lungs subcrepitant inspiratory rales can be detected, which appear grouped in small areas, but are not accompanied by signs of bronchitis. They are particularly evident at the base of the right lung. Some are detected in the apices, but here they take on peculiar characters.

Nothing could be detected in the heart, the pulse was of low tension and in the morning when he entered the hospital its rate was 110.

Appetite lost, with a slight distaste for meat. Tongue nor-

mal; no hypertrophy of the tonsils, but the patient said that he was subject to sore throat. The patient does not vomit, there is no diarrhea, hemorrhage nor melena.

The abdomen is not distended, it is not very lax and rigidity of the recti considerably hinders palpation. However, a large tumor can be detected under the left false ribs, dull on percussion and whose borders can be with difficulty outlined. The growth continues directly with the splenic dullness under the false ribs. Below, the tumor extends to the umbilicus and inwardly almost to the median line. The spleen measures about 16 centimetres in the nipple line. There is no pain on palpation of the tumor. The liver is also enlarged, measuring 14 centimetres in the nipple line. No enlarged lymphatics could be detected in any part of the body. Left-sided varicocele.

The temperature varied between 37°.8 and 38°.5 C. The first evening in the hospital it reached 39°.5 C., but the next morning it had dropped to 37°.8 C. During the entire duration of the disease there was an elevation of the temperature varying between 37°.5 C. in the morning and 38°.5 C. in the evening.

The urine was normal in color, with a hardly visible clouding from albumen. After being centrifuged the deposit showed only one or two red blood cells such as may be met with in normal urine.

On February 26, 1903, the sputum was examined, but no bacilli of tuberculosis could be found. On March 1, the serodiagnosis of tuberculosis was made and was found positive at 1 for 15.

Blood examination made by Dr. Cade gave the following results: Red blood corpuscles 3,521,600, white cells 21,250 (s. acetic), 25,500 (s. colored). Corpuscular value, $\frac{18}{25}$ below 1. Hemoglobin 58%. Percentage: neutrophile polynuclears 79.5%, intermediaries 1.5%; large mononuclears and lymphocytes, 18.5% eosinophiles 0.5%. A few normoblasts and megaloblasts. No special change in the red cells, no poikylocytosis and no myelocytes with the triacid stain of Erlich.

On the 10th the sputum was inoculated in a guinea pig, but the animal died at the end of two days. By puncture of the spleen little blood could be withdrawn, and gave rise to no growth when inoculated on suitable media. This blood was also submitted to a

second examination by Dr. Cade and gave the following results: Eosinophiles, 1%, neutrophile polynuclears, 73%, intermediaries, 3%, mononuclears, 22%. Very few small lymphocytes. Koch's bacillus could not be discovered in this sample of blood.

On March 14, the patient became extremely oppressed in breathing, the respirations reaching 50. Over the spleen rough friction could be detected by palpation, while the liver appeared to have increased in size.

On March 18, the guinea pig inoculated on the 13th with the sputum, died, but search for Koch's bacillus by Jousset's technique remained negative.

On March 20, the patient complained of pain on the right and at the base of the lung friction sounds could be elicited, dullness was not absolute, while the vibrations were exaggerated.

Analysis of the urine on March 20 by Dr. Nicolas, gave the following results: Total amount 1100 grams, so that in the twenty-four hour amount was found, urea, 33 grams, uric acid, 2.53 grams, chlorides, 7.04 grams, phosphates, 3.058 grams. The proportion of uric acid to urea being consequently $\frac{1}{12.5}$. No bile, glucose, nucleo-albumen, albumose or peptone. By Esbach's test, about 20 centigrams of albumen per litre was found.

On March 26, the patient became livid and extremely oppressed, but auscultation of the lungs could discover no cause for this, only a slight degree of dullness being found at the left base. On the next day the sputum was found purulent and blood stained. The liver had become very large, measuring 16 centimetres in the nipple line, showing that it had evidently increased considerably in the last few days. The sputum did not contain any tubercle bacilli.

On March 28, the blood was again examined by Dr. Cade, showing 1,984,000 red cells and 25,823 white cells. There were a few giant cells, a few other pigmy cells and numerous nucleated red cells, a marked decrease in hemoglobin and a large number of normoblasts. No eosinophiles nor lymphocytes, polynuclears 74.2%, mononuclears 24.2% and intermediaries 1.6%.

The patient died on March 30, the autopsy being made thirty-three hours after death. Upon opening the abdomen it was immediately discovered that the case was one of a large neoplasm or

the left kidney, which had pushed the colon outwards so that it was in direct contact with the abdominal wall, the tumor projecting particularly upwards and forwards; however, when the colon was distended, it had a tendency to cover the tumor in front. The neoplasm when removed weighed 1 kilogram, 850 grams, being quite regularly oval excepting for a large boss seated on the anterior aspect, and which had been felt during life. The growth was completely encapsulated and adherent to the diaphragm, pancreas and aorta, but these had not become invaded by the neoplasm. The suprarenal capsule was probably included in the principal neoplastic mass, but it seemed that at the upper and anterior aspect of the tumor this gland could be recognized by its shape, but it had become completely involved in the process. The tumor was softened in certain places and at its lower part was found a cavity filled with broken down tissue. Everywhere else it looked rosy and hard, with small dark red hemorrhagic points. The left ureter was patent as far as the renal pelvis, but here it was obstructed by a neoplastic mass. The prevertebral glands were not involved, while the spleen was slightly increased in size, flattened out under the ribs, but presented no macroscopic evidence of disease.

The liver was very much enlarged and riddled with metastases, some of which projected above the surface of the organ, especially over its anterior aspect. These foci were easily enucleated, dark red in color, very friable and partially softened down. In size they varied considerably, the largest being at least that of a walnut. There was also perihepatitis and a lax symphysis united the liver to the diaphragm.

From 30 to 40 grams of bloody fluid was found in each pleural cavity, likewise a few thin adhesions, which, however, were very tough. The right pleural cavity presented in its entire lower half a roughened condition of the serous membrane which explained the extensive friction sounds heard during life. Both lungs were literally riddled with cancerous foci, so that more than half the pulmonary tissue had been destroyed. These metastases were of firmer consistency than those of the liver, while their size and color was very variable.

The heart was perfectly healthy. In the left testicle, or rather in the tunics covering it, were found one or two malignant

nodules the size of a pea. To sum up, there was generalization of the process in the organs, but not in the lymphatics.

In this case the history of the patient was of little value; he did not cough, he had never had malaria, nor blood in his urine. The neoplasm developed quietly and had only given rise to a little pain in the left lumbar region, while the patient rapidly lost flesh and strength. Palpation was difficult, the growth had the feel of the spleen, but it is only right to say that rigidity of the recti considerably hindered the examination, so that the sulci found in the surface of the spleen could not be detected. The tumor was dull on percussion, the dullness and growth both extended up under the left false ribs, so that, combined with the absence of any pathologic condition of the urine or renal ballottement, one was led to suspect splenomegalia. Blood examination could not make the case be considered as a leucemia, but the elevation of the temperature, cough, dyspnoea, bloody sputum, the symptoms obtained by auscultation, leucocytosis, hepatomegalia following the splenomegalia, and lastly, the sero-diagnosis of tuberculosis, led one to think that perhaps the case was one of these forms of tuberculous splenomegalia, several instances of which have been related during the last few years.

In spite of the infrequency of this pathologic process we accepted this hypothesis, although the absence of Koch's bacillus in the sputum and blood, however, would render this diagnosis doubtful, but not to be absolutely rejected. In this case much more importance should have been given to the varicocele whose apparition occurred after that of the tumor on the left side. Then again, if an intra-vesical separation of the urine had been undertaken, it would have allowed us to absolutely affirm the renal localization of the neoplasm, for the simple reason that post-mortem examination made it evident that the diseased kidney was incapable of carrying on secretion of urine.

Insufflation of the colon might, perhaps, have brought out resonance on both sides of the tumor, and at any rate would have given us an exact appreciation of the situation of the descending colon. From all that has been said, the importance of the appearance of a varicocele, the necessity in doubtful cases of intra-vesical separation of the urine and the little value which should be given to palpation, percussion and so forth, seem to me evident.

The next case did not offer the same diagnostic difficulties, but nevertheless if blood examination had not been made, the diagnosis would have been impossible.

CASE 2. (Due to the courtesy of Dr. Cade). L. E. Twenty-four years of age, entered hospital October 12, 1903, service of Prof. Bondet. Diagnosis: splenomegalia, myelogenous leucemia. The patient was brought to the hospital on account of daily febrile attacks and for a large abdominal tumor.

The patient's father is in good health, his mother dying in labor. He has brothers and sisters enjoying excellent health.

The patient himself has never been seriously sick and has always felt well. No alcoholism, no syphilis. Three years ago he left for his military service and was sent to Tunis, but was never in the southern garrisons. During the first two years of his service he remained perfectly well; in December, 1902, he had icterus and was treated for a few days in the infirmary. During this attack there was no rise in temperature nor hematuria, but his skin remained jaundiced for a considerable length of time. He then made a stay in the hospital, after which he went back to Sfax, from which point he was given leave of absence for convalescence from anemia.

Six months ago, upon his return to France, he complained of a sensation of fullness and weight in the abdomen after eating. Then attacks of fever with chills and sweating commenced, and according to the patient's statement, the attacks occurred daily. A month ago he consulted a physician, who prescribed quinine, which he took for a fortnight. He told us that his abdomen increased regularly in size, and at the present time it causes him considerable hindrance during an effort or movement. No sharp pains are complained of. There are no distinct digestive disturbances, other than a diminution of appetite and a sensation of abdominal tension and distension, more marked after meals.

Examination. A young man, thin and pale, the mucous membranes are not very pale, the general hue of the integuments is straw color. Slight subicteric tint of conjunctiva. No edema of the lower limbs, and for that matter the patient states that he has never had any. No enlargement of the axillary, inguinal or cervical glands.

Abdomen. What strikes one first is the very large size, but

without any very marked forward projection; it is rather more regularly enlarged without being spread out. Its size prevents the patient from sitting with ease and interferes with respiration. No collateral circulation.

By palpation, a large tumor can be made out, occupying nearly the entire abdominal cavity. This neoplasm is smooth, hard and in direct contact with the abdominal walls. It extends more particularly over to the left, and by percussion it can be followed up under the false ribs, filling up the left hypochondrium and left iliac fossa so completely that its borders cannot be felt. It passes beyond the median line into the right flank and iliac fossa which it fills, but here its borders can be made out and a very distinct fissure can also be detected. Consequently the entire abdomen is practically filled by the growth and alone a little line of resonance separates the dullness of the tumor from that of the liver. Over this point the rounded border of the tumor can be felt, which can be nearly picked up by the fingers, and it is here that two fissures can be felt. Palpation is not painful and reveals friction sounds at several points. Behind, in the left lumbar region, there is slight pain elicited by palpation. Auscultation of the growth does not reveal any souffle, but the vessels of the neck present a continued blow.

The liver appears to be of normal size and its lower border does not project beyond the ribs. Heart normal, beats regular. No pulmonary lesion.

The patient presents attacks of fever, chills, heat, and sweating. When he entered the hospital the temperature was 40°.1 C., the next morning 36°.4 C. and since then has varied between 37 and 39 C.

On October 15, Dr. Cade made an examination of the blood and on the same day the patient was admitted into the service of Prof. Poncet. Dr. Delore made an intra-vesical separation of the urine and found that the urinary secretion was the same on both sides, consequently both kidneys functionate equally.

Blood analysis furnished the following data. Red cells 2,790,000, whites 147,000. Preparations stained with hematein-eosine showed polynuclears 24%, large mononuclears 70%, eosinophiles 2%, intermediary cells 4%, lymphocytes 0%. With preparations stained by Ehrlich's triacid stain was found polynu-

clear neutrophiles 26%, mononuclear neutrophiles 60%, eosinophiles 2%, large mononuclears 12% and lymphocytes absent.

On October 17, the liver came below the costal margin to the extent of about 1 centimetre and by percussion it was discovered that the organ measured from 9 to 10 centimetres in the nipple line.

On October 19, the urine was examined by Dr. Nicholas, who found a general decrease of all the normal elements of the urine, excepting uric acid, which had considerably increased so that the relation between uric acid and urea is increased nearly four times. The twenty-four hour amount of urine was 600 c.c and gave the following result: Urea 12.6 grams, uric acid 1.116 grams, chlorides 7.74 grams, phosphates 1.068 grams, $\frac{\text{uric acid}}{\text{urea}} = \frac{1}{11.3}$. Heller's reagent gave a very distinct disc, which was dissolved at a temperature of 50° C., consequently urates were present. Tauret's reagent gave a very slight precipitate. No sugar nor biliary pigments.

On October 20 a very marked edema of the legs and internal aspect of the thighs made its appearance.

When the patient presented himself at the first examination, one had the impression that the case was one of an enlarged spleen, but the difficulty was to assign a cause for the splenic hypertrophy. Against the diagnosis of leucemia was the absence of hepatomegalia, while malaria might have been suspected, but the patient had never had fever while he was in colonies and had only had a rise in temperature after the apparition of the tumor; then again the neoplasm was very large for a recent malarial spleen, and lastly quinine had been given for a certain time without any effect. Consequently malaria could be eliminated.

Blood examination should consequently allow one to settle the question of leucemia, and if this examination resulted negatively, the splenic nature of the growth would become doubtful. The types of splenomegalia which do not respond to leucemia or malaria being very rare, and the physical characters of the tumor, such as dullness, friction and fissured sharp border, do not give an absolute diagnostic security; then, on the other hand, the first case reported should lead one to be circumspect in these matters of differential diagnosis.

The considerable size of the tumor could in no way do away with the hypothesis of a rapidly developing malignant renal growth, an hypothesis which could well be upheld, given the age of the patient, the anemia and the profound changes undergone by the general health. Consequently, if a blood examination gave a negative result, the hypothesis of a renal tumor could well be sustained and here the intra-vesical separation of the urine was of great value from the fact that, although it might not furnish a decisive argument, it would at least have great weight. Now, both these examinations were done simultaneously and each of them gave a reply, which taken alone, would be sufficient to solve the problem. Each kidney secreted a normal quantity of urine, while, on the other hand, the blood showed all the characters of a myelogenous leucemia.

Case 3. (Due to the courtesy of Dr. Delore). P. F., entered the hospital November 13, 1903. Diagnosis: tumor of left kidney. Operation showed hydatid cyst of the spleen and omentum. Splenectomy.

Patient's father unknown, mother living and well; three brothers who were not born of the same father, in excellent health.

The patient had measles in infancy, but has never had malaria. First pregnancy at twenty-one years of age. A year after her labor, she noticed a small and painless tumor seated in the upper part of the abdomen; the tumor remained stationary for three years. At the end of this time second pregnancy and the tumor then began to considerably increase in size. It never gave rise to real pain, only to a feeling of weight in the abdomen. Eight days before the patient came under observation, she was seized with very severe headache, called in a physician and showed him the tumor, and, upon his advice, entered the hospital.

The patient stated that she had lost much weight during the last year, and at the same time became more and more pale.

Through the thin abdominal wall which was rendered very supple from the two pregnancies, a tumor could be made out on the left hand side under the ribs, extending down and filling the lumbar fossa. Its contours were very distinct, its surface irregular and in consistency hard and resistant. Starting from the left seventh rib it respected the tympanic space of Traube, became frankly abdominal, passed about 3 centimetres to the left of the

umbilicus and before reaching the level of the latter, it turned backward; behind it occupied the entire lumbar region and above overlapped the pulmonary resonance, producing a zone of dullness which stopped 3 centimetres from the vertebral column. In front there was no colic resonance, as is found in renal tumors, while behind was to be found a line of resonance between the tumor and the vertebral column as is met with in splenomegalia.

When the tumor was carefully palpated its anterior aspect was found to be composed of a tumefaction forming a cask over the deeper portion of the tumor which is very much more considerable. Ballottement was extraordinarily distinct; both hands searching this sign may, so to speak, seize the tumor both forwards and backwards. No fluctuating point could be detected.

The patient had never had any urinary symptoms, no polyuria, hematuria nor pyuria, no lumbar or reual pain.

Temperature normal. No plumonary nor bone localization. Examination of liver negative. No albumen in urine. On November 21 laparotomy by Dr. Delore. A vertical lateral incision on the external border of the left rectus, starting at the costal border and carried to within two fingers breadth of the antero-superior iliac spine. The tumor which was irregular and bossed, was adherent to the omentum and especially to the lumbar walls, so that, at first sight, it was thought to have a retro-peritoneal origin, although its reddish aspect with a bluish reflection recalled more particularly splenic tissue. The numerous adhesions with the omentum were easily broken down and the tumor was dislocated outwards. It was then found that we were dealing with a spleen which had become transformed into a hydatid cyst. The normal part of the organ covered the antero-external aspect of this enormous mass like a cask. When removed the spleen weighed 1100 grams. Convalescence uneventful.

This case offered very considerable difficulty from the standpoint of diagnosis, so much so that here in opposition to what was observed in Case 1, the kidney was thought to be the organ involved, when in reality it was the spleen, as the operation proved.

In favor of a renal localization there was a distinct ballottement, while the results of palpation showed a very irregular tumor which could not decide one either for or against the kidney. The tumor was dull but quite a distinct resonance was present behind,

between the dullness of the growth and that of the vertebral column, and here evidently was a sign which pleaded more in favor of a splenic localization. It consequently may be conceived that it was used as a strong diagnostic element and that the much greater frequency of renal tumors, in spite of the absence of any urinary symptom, caused the balance to weigh in favor of the latter. Hydatid cysts of the spleen are, in point of fact, exceptional. The only thing to be regretted in this case is that intravesical separation of the urine was not done, which would have settled the diagnosis.

In the *Journal de Médecine interne,* February, 1903, is to be found the report of a case of primary tuberculous splenomegalia from the pen of Dr. Chauffard. In this case the physical signs were of little value. One of the functional symptoms which I have considered as very important, namely, the appearance of a varicocele, is regarded by Chauffard as of very slight importance. On the other hand, it was by taking into consideration the thermic reaction produced by an injection of tuberculin that he was able to make the diagnosis of tuberculous splenomegalia, but there is a question whether or not certain reserve should not be made. Although this reaction indicates that a focus of tuberculosis is somewhere present, it does not give any information as to its localization, which may be quite as well splenic as renal, and although the patient in this case had no urinary history, such as hematuria or pyuria, the diagnosis of a renal tumor cannot, for this reason, be rejected, because the first case related in this paper presented nothing abnormal in the urine.

Separation of the urine which would have been of great help, was not done in this case and as Schwartz says, who has tried this procedure, the fact of so great an excitability was a very suspicious symptom from the standpoint of the existence of a renal lesion. Distension of the colon with air gave no data; from the analysis of the blood nothing could be concluded other than that there was a slight anemia. However that may be, Chauffard's case is of extreme interest and shows us the difficulties that may be encountered in the examination of tumors of the left hypochondrium. All these cases have not allowed us to take into consideration all the possible hypothesis, and they have only allowed us to put in evidence the diagnostic difficulties in these cases, and particularly

to lay less importance on the value of certain differential signs. The object of this paper was not to consider the diagnosis of all tumors arising in the left hypochondrium, nor the diagnosis of the nature of a renal or a splenic tumor, my desire being simply to discover by what means one might diagnose a renal or a splenic tumor in difficult cases.

From this study I believe the following conclusions may be drawn: In a diagnosis of tumors of the left hypochondrium, it is sometimes very difficult to differentiate a renal growth from a splenomegalia. Under these circumstances the information obtained from the shape and situation of the tumor cannot be of any great value, and the same may be said of the results obtained by percussion. Ballottement is distinctly in favor of a renal neoplasm, but does not constitute a pathognomonic sign. *A recently appearing varicocele* is a most important symptom in favor of a renal localization of the growth. Examination of the blood should always be done and may occasionally solve the problem. On the other hand, examination of the urine is often insufficient, but it would appear to me that intra-vesical separation should be undertaken in doubtful cases and may give rise to very important results. As to insufflation of the colon it may always be undertaken on account of its inocuity and easy execution and will perhaps give some interesting information.

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THE HISTORY OF PROSTATIC SURGERY IN CONNECTICUT.[1]

By Oliver C. Smith, M.D.,
Hartford, Conn.

Mr. President and Gentlemen of the American Urological Society:

The history of prostatic surgery in the State of Connecticut is neither old nor voluminous. So far as I am able to learn, the only attempt at prostatic enucleation, prior to 1900, was made during an operation for suprapubic cystotomy by Dr. Melancthon Storrs at the Hartford Hospital. Some portion of the gland was removed with the finger in the bladder, but the operation was not undertaken for that purpose.

In 1901, Dr. Harmon G. Howe performed the Bottini operation upon an elderly man suffering from pyelonephritis, plus an enlarged prostate. He lived three months, and was considerably relieved of his bladder symptoms.

The same year Dr. E. J. McKnight performed an elective operation on the prostate upon a patient who was thoroughly septic from retention of purulent urine, operating by the suprapubic route. The patient died soon after from general septicaemia.

Following the meeting of the American Medical Association at St. Paul, much interest was manifested at Hartford in the paper of Dr. Parker Sims, which was read at that meeting, describing his operation for perineal prostatectomy, aided by the use of his inflatable, rubber, prostatic tractor.

[1] Read at the Annual Meeting of the American Urological Association, June, 1905.

Dr. Dawbarn of New York, while at the Hartford Hospital one day, demonstrated the use of Dr. Sims' tractor, while doing an external urethrotomy.

Case 1. The first perineal prostatectomy performed in Connecticut, occurred at the Hartford Hospital, June 26, 1902, and was accomplished by the author of this sketch. The patient was a feeble man of fifty-six years, suffering from complete urethral obstruction due to a deep prostatic stricture, from a trauma received fifteen months previously. One week before admittance to the hospital, his symptoms, which had gradually been increasing in severity, became alarming. Catheterization was found impossible, and a small quantity of pusy urine dribbled from the distended bladder. Operation was performed under ether, through a median perineal incision, and the prostate drawn down by Dr. Sims' tractor. Patient suffered but little from shock; sat up on the eleventh day; drainage tube removed on fourteenth, on which day irrigation was carried through the penile urethra. On account of the dense traumatic stricture which existed in this case, more of the urethra was removed than in our later cases. The fistula was allowed to close in September, after which the urine was voided through the penis. During the three years which have elapsed, the patient has been operated upon for haemorrhoids and inguinal hernia, and still lives. At the last examination, a year ago, there was still some incontinence.

Case 2. Our second case was an American architect, seventy-four years of age, who had suffered from prostatic obstruction for six years. For the past two years, following an acute attack of urethral obstruction, he has depended entirely upon a catheter. When first seen by me, he had been confined to bed five weeks. Was anemic, emaciated and extremely feeble, suffering constant distress from bladder symptoms. There was constantly from 100 to 200 c.c. of foul, purulent residual urine. It was decided to perform perineal drainage at his home. This was done June 18. At the end of three weeks his condition had improved to such an extent that prostatectomy was considered feasible, and was accordingly performed July 9, under ether anesthesia. The patient sat up on the seventh day, the first time for eight weeks. Drainage tube was removed at the end of two weeks; patient was out at the end of three weeks, and his further convalescence uneventful.

This patient, now at the age of seventy-seven, more than three years after operation, is in excellent condition. His bladder holds from 200 to 300 c.c of urine, without incontinence, and is emptied at will.

Case 3. Our third case was a feeble man of seventy-four, who had suffered from extreme prostatic disease for two years. Had been confined to bed twelve weeks, voiding purulent urine at intervals of half an hour. Had suffered two attacks of complete retention. Was emaciated and hectic, with marked arteriosclerosis. His condition was considered all but hopeless, but in view of his extreme suffering and our inability to relieve him other than by operation, we decided to make the attempt, and did so on August 9, under local cocaine anesthesia. It was not an easy operation, but the complete prostate was removed. To our surprise, the patient suffered but little from shock, and was at once relieved of his bladder distress. He sat up at the end of the week; his urine was much improved. The following week he was exposed to a very cold temperature from an open window during the night, became thoroughly chilled, and developed bronchopneumonia, of which he died.

Case 4. Our fourth operation was upon a delicate, nervous man of sixty-five years, who in addition to his bladder symptoms had been losing flesh and strength for several months. Median incision, perineal prostatectomy with the Parker Sims instrument, with uneventful recovery as the result. The prostate proved to be cancerous, however, and the patient died one year later of general carcinosis.

Case 5. Our fifth case was at the Litchfield County Hospital; the patient, aged sixty-one, who had suffered bladder symptoms for eighteen months. An attack of complete retention necessitated aspiration, after which he was brought to the hospital, prepared for operation and again aspirated. Operation of perineal prostatectomy with Parker Sims instrument was performed in the evening with uneventful recovery, with the exception of an orchitis on the third day, which subsided early. Patient left hospital November 1, five weeks following operation, with complete control of vesical sphincter. This patient suffered a recurrence, and was operated upon a second time, two years after.

Cases 6 and 7. Our sixth and seventh cases were in the town

of New Britain. They were both veterans of the Civil War, and both aged sixty-nine. Both had symptoms of prostatic obstruction for several years with increasing severity. Both had albuminuria and arterio-sclerosis, and one of them a marked mitral regurgitant murmur. In both it was thought that only perineal section could be safely performed, but in both we removed the prostate with an uneventful recovery in each case.

CASE 8. The eighth case was from Waterbury, Connecticut, who came to the Hartford Hospital for operation, having suffered from prostatic symptoms for between two or three years. His urinalysis was indicative of chronic nephritis, the urine having a gravity of 1007, contained albumen and casts, pus and blood with epithelium from pelvis of kidneys. This patient did fairly well for a time, but finally succumbed to general septicemia. At autopsy, two months following operation, kidneys were found markedly contracted with purulent foci; also an abscess in the recto-vesical space.

CASE 9. Our ninth case, from Bloomfield, Connecticut, occurred in a farmer aged seventy, who had suffered from prostatic symptoms for past year. Prostate was found to be very large; his urine of low gravity, but free from pus. He entered St. Francis Hospital, but the night following preparation for treatment, had a severe chill followed by temperature of 104° and diarrhea. His operation should have been postponed, but we felt that his bladder sepsis in a measure attributed for his high temperature, and we accordingly operated with the patient in this extreme condition. The operation was uneventful, there was but slight shock, and the local condition did well, but the intestinal infection continued, and he died five days following the operation in a typhoid state.

CASE 10. Our tenth case was a resident of Hartford; an American, aged seventy-four. He gave a history of progressive prostatic symptoms with purulent cystitis for past two years. He was a thin, feeble and nervous patient, but bore his operation with but slight shock, and left the hospital at the end of the third week in a very comfortable condition; wound nearly healed. The purulent cystitis, however, continued in this case, and ten months later a vesical calculus was discovered and removed by litholapaxy. Several months following the operation it was discovered that he

had a recto-urethral fistula, the only one in the author's series of cases of which he has knowledge. His patient is still living in a fairly comfortable condition.

CASE 11. Our eleventh case occurred in the person of a distinguished physician from New Britain, Connecticut, aged seventy years. Had had marked prostatic symptoms for past two years. Had suffered from three attacks of severe anuria. Has chronic albuminuria, increasing bladder distress, urine voided only by catheter, and that has to be used hourly. Operation has been discouraged by physicians from New York and Boston. Operation at Hartford Hospital, October, 1903. Median perineal incision. Operation uneventful; slight shock. Hiccoughing persisted for two weeks following operation. An attack of bronchitis added three weeks to patient's convalescence. Patient left hospital in five weeks with fistula still open. This closed during first week at home. Nine months later patient reports having gained twenty pounds in flesh, and having resumed his practice as well as local examinership of New Britain, he having been previously entirely out of practice for two years. This patient is now traveling in Europe. At my last examination there was slight urinary incontinence.

CASE 12. Y. C. Hartford. Age seventy-five. Referred by Dr. E. W. Kellogg.

Suffered from bladder distention and diminishing stream for past four years. Water passes now only in drops. Attempts at self catheterization futile. Prostate much enlarged.

Operation, June 23, at Bruce Private Hospital, Hartford. Perineal incision. Local cocaine followed by general ether anaesthesia. Three lobes enucleated. Drainage tube removed fourth day. Patient sat up and passed water per urethram on eighth day. Left hospital end of fourth week with complete bladder control. Perineal wound healed.

CASE 13. M. K. Norfolk. Age sixty-four. Recurrent case, having been operated upon by the author two and one-half years ago.

Operation, Litchfield County Hospital, July 22. Perineal incision. Chloroform and ether anaethesia. One lobe of prostate found encroaching upon urethra. Operation uneventful. Drainage tube removed at end of week. Patient made slow pro-

gress, as marked atony of bladder existed from attacks of severe distention. Patient left hospital at end of second month with ability to empty bladder, but with some incontinence.

CASE 14. G. G. Winsted. Age seventy-three. Referred by Dr. William S. Hurlburt. Patient confined to bed. Feeble health. Purulent cystitis, suffering severe pain. Progressive prostatic symptoms for past year. No urine passed without catheter. Operation, Winsted Hospital, July 27. Inverted V perineal incision. Ether anaesthesia. A greater portion of three lobes removed. Patient made slow but steady progress toward recovery. Discharged from hospital at end of fifth week, with perfect bladder control. Patient up and about. General condition much improved.

CASE 15. R. E. M. Kensington. Age seventy-two. Prostatic symptoms of six months duration. Residual urine, three oz. Prostate bilaterally enlarged. Moderate arterio-sclerosis. Operation, Bruce Private Hospital, August 15. Inverted V perineal incision. Ether anaesthesia. Three lobes enucleated. Drainage tube removed fourth day. Patient sat up at end of week. Left hospital at end of fourth week. Complete bladder control.

CASE 16. A. W. C. New Hartford. Age seventy-seven. Referred by Drs. J. and Paul Swett. Seven years ago submitted to castration for enlarged prostate. Improvement resulted and continued from two to three years. Since that time progressive prostatic symptoms. During past year has voided urine by catheter only. Three months ago was unable to enter bladder, since which time the Drs. Swett have been obliged to catheterize several times during each twenty-four hours. Patient suffers from chronic rheumatism, and arterio-sclerosis. Prostate much enlarged.

Operation, Hartford Hospital, August 15. Inverted V perineal incision. Gas and ether anaesthesia. Very large median lobe enucleated. Operation remarkably well borne. Tube removed third day. Patient sat up on ninth day, and left hospital at end of sixth week. Can empty bladder at will. Slight incontinence when bladder is full.

CASE 17. P. L. Hartford. Age seventy-three. Referred by Dr. Emil Reinert. Prostatic symptoms of one year's duration. Urination has become more and more difficult, until

the past month since which time catheter has been used continuously. Catheterization accompanied now by pain and hemorrhage. Patient suffers from marked arterio-sclerosis. Fine rales over bases of both lungs posterially. Prostate much enlarged bilaterally.

Operation, September 20, at Hartford Hospital. Perineal incision. Chloroform anaesthesia. Prostate removed piecemeal, but completely. Slight shock. Drainage tube removed on fourth day. Patient sat up at end of week. Present writing (October 1), wound not entirely healed, although some urine is passed per urethram.

CASE 18 was that of a gentleman from East Hartford, Connecticut, who had suffered from bladder symptoms for past two years, and for the past nine weeks had been unable to work on account of these symptoms. He was rapidly losing flesh, had markedly arterio-sclerotic arteries and bilaterally enlarged prostate, with 8 oz. of residual urine. Operation was done at his home through a median incision, and decided hemorrhage encountered from the start. Prostate was drawn down with Sims' tractor, but before enucleation of gland was commenced, patient showed marked symptoms of collapse, and the operation was abandoned. He died within an hour without getting out of his anaesthesia. This unfortunate case was the only immediate death we have experienced.

CASE 19 was in a gentleman from Lake Tahoe, Cal., aged seventy-four. Had suffered bladder symptoms from two to three years; was now passing small quantity of urine, an overflow from a distended bladder, the bladder constantly forming a tumor in the abdomen reaching nearly to the umbilicus. Although care was exercised in drawing but a portion of the urine, this was accomplished only with considerable pain and some bleeding, with a minute soft catheter. There was marked chill following catheterization. Prostate was bilaterally enlarged; arteries markedly sclerotic; the patient was rapidly failing in strength and losing flesh. He was a poor subject for a surgical operation, but catheter life was impossible, and we were forced to operate. Operation was performed through an inverted V incision. The Young prostatic tractor was used. Three lobes enucleated with comparative ease. The patient did poorly from the start, the

abdomen becoming markedly distended; anuria developing at once. Patient died at the end of forty-eight hours.

CASE 20 at Stamford, Connecticut, occurred in a gentleman aged seventy-three. Postmaster. Gave a history of having had good health until two years ago, when he began to fail in strength and flesh, accompanied with hesitation and frequency of urination. Has now been confined to bed sixteen weeks. A markedly enlarged prostate with from 4 to 6 oz. of residual purulent urine; well marked arterio-sclerosis and mitral regurgitant murmur. Operation, Stamford Hospital, March 14. Ether anaesthesia. Inverted V incision. Two large lobes of prostate enucleated. Considerable bleeding. Scarcely any shock. Four months later his attending physician, Dr. Bohannan, reports the patient in excellent condition; up and about attending to his duties, emptying his bladder completely with perfect control.

CASE 21, a resident of Hartford, aged sixty-one, suffered from bladder symptoms for past two years. Entered Hartford Hospital March 18, 1905. Gave a history of having had three attacks of retention, requiring catheterization during past two years. Bladder aspirated upon entrance, urethra being found impassable. Operation, March 21. V incision. Gas and ether anaesthesia. Three lobes enucleated with but little difficulty. Drainage tube removed third day; sat up in chair on seventh day. On twelfth day the hospital note reads, "Condition excellent. Wound nearly closed. Patient up all day, voiding water through urethra." Condition three months later: bladder holds 8 to 9 oz. Perfect control. Condition of urine practically normal.

CASE 22 was from Lyme, Connecticut, referred by Dr Ely. Patient, aged sixty-eight; an alcoholic with marked prostatic obstruction; 6 to 8 oz. residual purulent urine. Operation, Hartford Hospital, March 4. Anaesthetic methods similar to last cases reported. Operation uneventful. Condition of patient excellent up to end of fifth day, when acute lobar pneumonia developed with high temperature and delirium. Death at end of ten days.

CASE 23, a resident of Hartford, patient of Dr. William Porter, Jr. A thin but wiry man, aged seventy-four, who gave a history of having suffered from bladder symptoms for several years. During the past six months progressive loss of flesh and

strength, malaise, evening temperature, frequency of micturition, intervals of one and two hours, restless nights. Examination showed markly enlarged prostate with 4 to 6 oz. of residual urine containing considerable pus. Operation, Bruce Hospital, March 23. Eucaine local anaesthesia for superficial dissection. Ether for enucleation. Three lobes removed. Very little hemorrhage. No shock. Drainage tube removed fourth day; patient sat up at end of week. Made a complete, rapid and uneventful recovery. Now, three months later, rises but once at night. Bladder contracts vigorously and expels normal sized stream. Is under perfect control. Has a very slight fistula remaining at upper angle of incision, which emits a few drops of urine at time of micturition.

CASE 24 was a resident of Hartford, aged seventy-eight, with hardened arteries. Mitral lesion, impaired digestion. Attacks of acute dyspepsia. Suffering from attacks of nervous irritability and depression, voiding urine at intervals of one to three hours. Has had two attacks of retention, catheterization at both times causing pain and hemorrhage. As this patient was considered a poor subject for operation, two weeks were spent in an attempt to antiseptize the bladder and reduce the enlarged prostate. At the end of the two weeks the patient had failed, and the urethra and prostate were more irritable than at first. Operation, Bruce Hospital, April 27. Local and general anaesthesia as in case twenty-three. The operation through inverted V incision proved rather difficult, but scarcely any shock followed. A serious anuria occurred early during convalescence, persisting for three days, during which time patient entered a typhoid state. Gradually the kidneys resumed their function, and the patient improved. He left hospital at the end of fourth week with perfect bladder control. This patient continued with excellent bladder conditions up to June 20, when he died suddenly of angina pectoris.

CASE 25 was a young man aged twenty-five, a resident of Manchester, Connecticut, who two years previously suffered gonorrheal cystitis. He was treated for this; had urethral vesical irrigations for a greater part of the intervening two years, passing urine at intervals of twenty minutes to half an hour. Urine contained pus and blood. Operation, Bruce Hospital, June 1. External urethrotomy performed through inverted V incision. Constant irrigation following operation for twenty-four hours. Shortly

after operation patient had a convulsion, followed by high temperature, both of which subsided. Drainage tube was left in two weeks, during which time daily boric acid irrigations were used with occasional injection through drainage tube into bladder of 10% argyrol solution. Numerous examinations of urine for tubercle bacilli were made, but none found. Pus and urine is gradually diminishing. Patient left hospital at end of five weeks, still running some afternoon temperature.

In relation to the pathology of the prostates removed from the above series of cases, a large majority of them were fibro-adenomata. A few contained more muscular tissue, and should be classified as myo-adenomata. Unfortunately all the specimens were not examined. This was true in the fourth case, which was undoubtedly cancerous, as the patient suffered a metastasis of left lung and pelvis. The importance of careful pathological examination is apparent, as upon it the ultimate prognosis largely depends. Dr. Monro of Boston, tells me that the present feeling of the operators at the Carney Hospital, is that cases which adhere firmly to the pelvic fascia and are removed only with difficulty and hemorrhage, are probably malignant, and that the pathological findings prove many more cases to be so than was at first supposed.

The drainage in our first cases was accomplished by a single tube one cm. in diameter, stitched to the skin. Later we employed one large and one small tube united by a few silk sutures. In our last eight cases we have used the drainage tube which I here present, which consists of one large tube carrying a small one, the proximal end of the small tube emerging through the wall of the larger, the two being annealed by heat. As the urethra closes about this tube it forms a cylindrical tract, rather than an irregularly shaped one, as was the case when the two attached tubes were used. This tube is tied to the suture through the upper angle of the wound with a silk bow-knot, so that the tube can be removed and replaced at will. This drainage tube is the result of the efforts of one of my associates, Dr. O. R. Witter.

From the foregoing it will be seen that at Hartford, the capital of our State, we commenced our work upon the prostate five years ago, performing both the suprapubic and Bottini operations; that two years later we employed the perineal route with the

median incision and the Parker Sims' tractor. Still a year later, following the lucid and scientific article of Dr. Young, which appeared in the *Journal* of the American Medical Association, we employed the incision as recommended by him, and his metal tractor. Our results have certainly improved with this method. Our dissections are more carefully and completely executed; the work is done with more room and better view. It is our feeling in Connecticut up to the present time, that this is the operation of choice in the majority of cases, and we feel that great credit is due the men who have worked out these problems.

As this work is practically in its early stages, few of us are able to report on a large number of end results. That some cases will be lost of complications and sequellae, depending largely upon the degenerate condition of patients suffering from enlarged prostates, must be admitted, but that the relief from suffering and prompt and vast improvement in local and general conditions with the majority of these cases is most gratifying, we must all acknowledge. That the operation has come to endure there can be no question. There will, undoubtedly, be greater discretion used in the selection of cases, as in all other new fields of operative work, as we attain more experience.

It is anticipated by the writer that an honest comparison of experiences and statistics in this operation by operators from various parts of the country will greatly aid us in arriving at correct conclusions, and the most desirable lines of treatment.

BOOK REVIEWS

Operative Surgery. For Students and Practitioners. By JOHN J. MCGRATH, M.D., Professor of Surgical Anatomy and Operative Surgery at the New York Post-Graduate Medical School. *Second edition, thoroughly revised.* With 265 illustrations, including many full-page plates in colors and half-tone, 628 royal octavo pages, extra cloth, $4.50 net; half-morocco, $5.50, net. Sold only by subscription. F. A. DAVIS COMPANY, Publishers, Philadelphia, Pa.

This book, the second edition of which we now notice, has been carefully and thoroughly revised, while a number of illustrations and much new matter have been added. The operative surgery of the stomach, intestines, pancreas and spleen are worthy of particular mention.

The author has endeavored to combine in a practical way the subjects of surgical anatomy and operative surgery and in this he has succeeded admirably.

The work will be found of much value to all engaged in the practice of surgery, while for the student the teachings in its pages will be reliable, sound and fruitful.

Die Chronische Gonorrhœ der Männlichen Harnröhre und ihre Komplikationen. By Prof. Dr. F. M. Oberlander und Prof. Dr. A. Kollmann. Leipzig, 1905. George Thieme, *Publisher.*

This most complete and scientific work, representing the teachings and practice of two eminent urologists, cannot fail to attract the attention it so justly deserves. To give an adequate review would require several pages, but it may be said that the bacteriology, pathology, symptomatology and treatment of chronic gonorrhea and its many complications are more than thoroughly discussed.

The illustrations are numerous and eight plates, most of which are in color, complete the work, which also has a good index at the end.